INTERNATIONAL SEARCH REPORT

International application No.
PCT/IL04/00275

A. CLASSIFICATION OF SUBJECT MATTER
IPC(7) : C07K 16/00; G01N 33/53; A61K 39/395
US CL : 530/387.1, 387.3, ; 435/7.1 ; 424/130.1, 133.1, 178.1
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 530/387.1, 387.3, ; 435/7.1 ; 424/130.1, 133.1, 178.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	ANDERSEN et al., "A recombinant antibody with the antigen-specific, major histocompatibility complex-restricted specificity of T cells," Proceedings of the National Academy of Sciences, USA, March 1996, Vol 93 No. 5, pages 1820-1824.	1,3,4,8,16,17,19, 20, 23, 24 --- 2-4, 6,7, 10 1-106, 109, 111-126, 129, 131-140
X --- Y	REITER et al., "Peptide-specific killing of antigen-presenting cells by a recombinant antibody-toxin fusion protein targeted to major histocompatibility complex/peptide class I complexes with T cell receptor-like specificity," Proceedings of the National Academy of Sciences, USA, April 1997, Vol 94 No. 9, pages 4631-4636.	1, 3,4,8,9,14-17,19,20,23, 24,26 --- 2, 6,7,18,21,22,25,27-35,40-52,101-106, 109, 111-123, 125, 126, 129, 131-140
X	POLAKOVA et al., "Antibodies directed against the MHC-I Molecule H-2Dd complexed with an antigenic peptide: similarities to a T Cell receptor with the same specificity," The Journal of Immunology, November 2000, Vol 165 No. 10, pages 5703-5712.	1,2,8,16,17,19-21,24,26

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"B" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search
04 March 2005 (04.03.2005)

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15 APR 2005

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Form PCT/ISA/210 (second sheet) (January 2004)

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C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6,416,738 B1 (THEODORE et al.) 09 July 2002 (09.07.2002), columns 11 and 58.	2-4,6,7,27-30, 32-35, 40-43, 45,46,49,50,51
Y	ENGBERG et al., "Recombinant antibodies with the antigen-specific, MHC restrictied specificity of T cells: novel reagents for basic and clinical investigations and immunotherapy," Immunotechnology, March 1999, Vol 4 Nos, 3-4, pages 273-278.	1,3,4,8,9,14-25,27-32,34,35,40-52,101-106, 109, 111-123, 125, 126, 129, 131-140
Y	US 5,591,829 A (MATSUSHITA, Shuzo) 07 January 1997 (07.01.1997), column 1.	1,3,4,8,9,14-25,27-32,34,35,40-52,101-106, 109, 111-123, 125, 126, 129, 131-140
Y	SAITO et al., "In vivo selection of T-cell receptor junctional region sequences by HLA-A2 Human T-cell Lymphotphic Virus type 1 Tax11-19 peptide complexes," Journal of Virology, January 2001, Vol 75 No. 2, pages 1065-1071.	18,25,27-32,34,35,40-52,101-106, 109, 111-123, 125, 126, 129, 131-140
Y	US 5,952,471 A (LAWSON et al.) 14 September 1999 (14.09.1999), esp column 3.	27-35, 40-52, 124
Y	US 5,695,928 A (STEWART et al) 09 December 1997 (09.12.1997), reference, esp. column 2.	176-179, 181-187, 189-195
X,P --- Y,P	US 2003/0223994 A1 (HOOGENBOOM et al), 04 December 2003 (04.12.2003), pages 2,7-8, and claims.	1,4,5,8,9,16-26 --- 2,3,6,7,14,15,27-35,40-52
Y,P	US 2003/0165993 A1 (BUECHLER et al.), 04 September 2003 (04.09.2003), page 3, paragraph [0037].	2-4, 6, 7
A	RUDIKOFF et al., "Single amino acid substitution altering antigen-binding specificty," Proceedings of the National Academy of Sciences, USA, March 1982, Vol 79, No 6, pages 1979-1983.	5, 6, 31, 33, 110, 130, 188

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
Please See Continuation Sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: Please See Continuation Sheet

Remark on Protest
☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

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BOX III. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claim(s) 1-9, 14-35, 40-52, 101-106, 109-126, 129-140, 176-179, 181-195, drawn to antibodies (or fragments thereof) comprising an antigen-binding region capable of specifically binding to the antigen-presenting portion of a complex of a human antigen-presenting molecule (APM) and an antigen derived from a pathogen, and a first method of using such for the detection of APM/antigen complexes, wherein the antibody is conjugated to a toxin.

Group II, claim(s) 1-13, 16-39, 42-52, 101-140, and 176-195, drawn to antibodies (or fragments thereof) comprising an antigen-binding region capable of specifically binding to the antigen-presenting portion of a complex of a human antigen-presenting molecule (APM) and an antigen derived from a pathogen, and a first method of using such for the detection of APM/antigen complexes, wherein the antibody is conjugated to a detectable moiety.

Group III, claim(s) 53-84, drawn to polynucleotides encoding antibodies comprising an antigen-binding region capable of specifically binding to the antigen-presenting portion of a complex of a human antigen-presenting molecule (APM) and an antigen derived from a pathogen, and host cells expressing such.

Group IV, claim(s) 85-100, drawn to viruses comprising a coat protein fused to a fragment comprising an antigen-binding region of an antibody capable of specifically binding to the antigen-presenting portion of a complex of a human antigen-presenting molecule (APM) and an antigen derived from a pathogen.

Group V, claim(s) 141-160, drawn to methods of killing or damaging target cells by exposing the cells to an antibody as described above.

Group VI, claim(s) 161-175, drawn to methods of treating a disease through the administration to the individual an antibody as described above.

If the Applicant pays the additional fees for a search of an invention according to Group III above, the Applicant is further required to elect a subgroup wherein the polynucleotide encoding the protein is attached to

(A) a toxin,
(B) a detectable moiety, or
(C) a viral coat protein.

This application contains claims directed to more than one species of the generic invention. These species are deemed to lack unity of invention because they are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In order for more than one species to be examined, the appropriate additional examination fees must be paid. The species are as follows:

For each of Groups I-VI above, the inventions read on species of the claimed invention wherein the antibody comprises one of the following sequences within its antigen-binding region: SEQ ID NOs: 14-97.

The inventions listed as Groups I-VI do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the common feature among these inventions is a antibody that binds to the antigen-presenting portion of a complex of an antigen-presenting molecule and an antigen. This feature is known in the art. See e.g., Andersen et al. (Proceedings of the National Academy of Sciences, USA 93: 1820-24) and Reiter et al. (Proceedings of the National Academy of Sciences, USA 94: 4631-36). Thus, the inventions do not share a common special technical feature over the prior art. The claimed inventions therefore lack unity.

The species listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, the species lack the same or corresponding special technical features for the following reasons: the species lack unity for the same reasons as indicated with respect to Groups I-VI above. The different sequences of SEQ ID NOs: 14-97 share no other common feature other than that they are derived from the antigen-binding region of antibodies as described above.

Continuation of Box III Item 4:
1-9, 14-35, 40-52, 101-106, 109-126, 129-140, 176-179, 181-195 (species is SEQ ID No: 14) 14